Table of Contents

Section 1: Stormwater Management Program
Section 2: Sediment Control Program
Section 3: County Road/Property Maintenance and Recycling Activities DO-
Section 4: NPDES Education Program
Section 5: Illicit Connections Program. DO-
Section 6: Geographic Information System and Databases
Section 7: Watershed Planning and Restoration
Section 8: Discharge Characterization and Assessment of Controls
Section 9: Watershed and Restoration Monitoring.
Section 10: BMP Pollutant Load Reduction
Section 11: Permit Administration, Legal Authority, and Fiscal Analysis DO-
Section 1: Stormwater Management Program
1.0 Permit Requirements1-
1.1 Introduction
1.2 Plan, and Variance and Fee-in-lieu Reviews.
1.2.1 Plan Reviews.
1.2.2 Variance and Fee-in-lieu Reviews.
1.3 Approved Stormwater Management Facility Analysis
1.4 Inspections.
1.5 Stormwater Management Facility Maintenance
1.6 Constructed Stormwater Management Facility Data Analysis
1.7 Summary
Section 2: Erosion and Sediment Control Program
2.0 Permit Requirement 2-
2.1 Introduction
2.2 Program Analysis—Plans Review
2.3 Program Analysis—Inspection and Enforcement
2.3.1 Grading and Building Permits Issued.
2.3.2 Inspections, Complaints and Enforcement
2.4 Program Analysis—Training Program
2.5 Summary
Section 3: Road Maintenance and Recycling Activities
3.0 Permit Requirements
3.1 Introduction
3.2 County Property Management
3.2.1 Status with NPDES Industrial Stormwater Discharge General 3-
0 2
Permit 3-
Permit. 3-3 3 Storm Drain Cleaning Program 3-
3.3 Storm Drain Cleaning Program. 3-
3.3 Storm Drain Cleaning Program. 3-3.3.1 Storm Drain Cleaning Overview. 3-3.5.1 Storm Drain Cleaning Overview. 3-3.5.1 Storm Drain Cleaning Overview. 3-5.5.1 Storm Drain Cleaning Overview.
3.3 Storm Drain Cleaning Program
3.3Storm Drain Cleaning Program.3-3.3.1 Storm Drain Cleaning Overview.3-3.3.2 Storm Drain Cleaning Data Analysis.3-3.3.3 Storm Drain Data by Watershed.3-
3.3 Storm Drain Cleaning Program

	3.4.2 Street Sweeping by Watershed	3-11
	3.4.3 Program Summary – Street Sweeping.	3-13
	Household Hazardous Waste (HHW)	3-13
	Fertilizer, Pesticide, and Deicing Statistics	3-17
Section	4: NPDES Education Program	
4.0	Permit Requirements	4-1
4.1	Introduction	4-1
4.2	Education and Outreach Program Description	4-3
	4.2.1 School Initiatives	4-3
	4.2.2 Outreach to Homeowners, Citizen Groups, Businesses, and	
	Landscape Managers	4-4
4.3	Environmental Education and Outreach Program Activity and	
	Accomplishments	4-6
	4.3.1 Schools: Activities and Accomplishments	4-9
	4.3.2 Community Outreach: Activities and Accomplishments	4-22
4.4	Other Environmental Education and Outreach Initiatives	4-27
	4.4.1 The Stream Watch Program.	4-27
	4.4.2 Watershed Association Restoration Planning and Implementation C	
	Program	4-27
	4.4.3 The Baltimore Watershed Agreement	4-28
	4.4.4 Tree-Mendous Maryland Program in Baltimore County	4-28
	4.4.5 The Baltimore County Forest Conservancy District Board	4-29
	4.4.6 The Baltimore County Growing Home Campaign	4-30
4.5	Summary	4-30 4-31
5.0	5: Illicit Connection Program Permit Requirements	5-1
5.1	Introduction.	5-1
5.2	Program Status	5-2
5.3	Analysis of Outfall Screenings	5-2
5.4	Illicit Connections Investigations and Corrections	5-10
5.5	Regional Illicit Connections Investigations and Complaint Database	5-15
5.6	Cooperative Project with the Center for Watershed Protection	5-16
5.7	Summary	5-16
	6: Geographic Information System and Databases	
	Permit Requirements.	6-1
6.1	Source Identification-Geographic Information System Data layers	6-2
	6.1.1 Storm Drain System.	6-2
	6.1.2 Urban Best Management Practices	6-2
	6.1.3 Impervious Surfaces	6-2
	6.1.4 Monitoring Locations	6-3
(5.1.5 Watershed Restoration	6-3
	Databases	6-3
	6.2.1 Chemical Data	6-3
	6.2.2 Biological Data	6-3
(5.2.3 Geomorphological Data	6-4
	5.2.4 Illicit Discharge Detection and Elimination	6-4
	6.2.5 Responsible Personnel Certificate Information	6-4
	6.2.6 Grading Permit Information.	6-4

Section 7: Watershed Planning and Restoration	
7.0 Permit Requirements	7-1
7.1 Introduction	7-2
7.2 Status of Watershed Management Plans	7-3
7.2.1 Water Quality Management Plans	7-3
7.2.2 Small Watershed Action Plans (SWAPs)	7-4
7.3 Obtaining Pollution Reduction Numbers	7-6
7.3.1 Stream Restorations	7-6
7.3.2 Shoreline Enhancement Projects	7-6
7.3.3 Stormwater Retrofits	7-7
7.3.4 Community Reforestation Program.	7-7
7.3.5 Activities of Volunteer Organizations	7-8
7.4 Capital Restoration Projects - Upper Western Shore Watersheds	7-8
7.4.1 Deer Creek	7-8
7.4.2 Prettyboy Reservoir	7-8
7.4.3 Loch Raven Reservoir Watershed	7-11
7.4.4 Lower Gunpowder Falls Watershed	7-14
7.4.5 Little Gunpowder Falls Watershed	7-16
7.4.6 Bird River Watershed	7-16
7.4.7 Gunpowder River Watershed	7-18
7.4.8 Middle River Watershed	7-20
 7.5.1 Liberty Reservoir Watershed. 7.5.2 Lower North Branch Patapsco River Watershed 7.5.3 Gwynns Falls Watershed. 	7-21 7-22 7-25
7.5.4 Jones Falls Watershed	7-27
7.5.5 Back River Watershed	7-30
7.5.6 Baltimore Harbor Watershed	7-33
7.6 Community Reforestation Program	7-35
7.7 Volunteer Organizations	7-37
7.8 Additional Restoration Efforts	7-39
7.8.1 Growing Home Campaign	7-39
7.8.2 Tree-Mendous Maryland Program in Baltimore County	7-40
7.8.3 Big Tree Sale	7-41
7.8.4 Baltimore County Public School's High School Restoration Project.	7-41
7.9 Pollution Reduction Tracking System	7-41
7.10 Impervious Surface Calculation.	7-42
Section 8: Discharge Characteristics and Assessment of Controls 8.0 Permit Requirements	8-1
8.1 Introduction.	8-3
8.2 Scotts Level Branch Long-Term Monitoring	8-3
8.2.1 Monitoring Design.	8-5
8.2.1.1 Flow Monitoring	8-5
8.2.1.2 Chemical Monitoring.	8-6
8.2.1.3 Geomorphological Monitoring	8-7
8.2.1.4 Biological Monitoring	8-9
0.2.1.1 Diological monitoring	U-)

8.3	Scotts Level Branch Long-Term Site Monitoring Results	8-9
	8.3.1 Precipitation and Flow Monitoring	8-9
	8.3.2 Chemical Monitoring.	8-14
	8.3.2.1 Storm Event Monitoring Results	8-14
	8.3.2.2 Baseflow Monitoring Results	8-15
	8.3.3.3 Pollutant Load Calculations	8-16
	8.3.3 Geomorphological Monitoring	8-20
	8.3.3.1 Scotts Level Branch Geomorphological Monitoring Results	8-20
	8.3.3.2 Powder Mill Run Geomorphological Monitoring Results	8-23
	8.3.4 Biological Monitoring Results	8-25
	8.3.5 Scotts Level Branch Pollutant Load Calculations	8-27
8.4	Windlass Run Monitoring – Stormwater Management Assessment	8-32
	8.4.1 Stream Geomorphologic Assessment	8-33
	8.4.2 Biological Monitoring	8-42
Section	9: Watershed and Restoration Monitoring	
9.0	Permit Requirements.	9-1
9.1	Introduction.	9-1
9.2	Chemical Monitoring Program.	9-2
	9.2.1 Baseflow Monitoring.	9-2
	9.2.2 Tidal Waters Monitoring Program	9-11
9.3	Stream Geomorphological Monitoring.	9-16
9.4	Biological Monitoring.	9-17
	9.4.1 Probabilistic Monitoring.	9-17
	9.4.2 Capital Improvements Projects Monitoring	9-28
	9.4.3 Reference Site Monitoring.	9-37
	9.4.4 Submerged Aquatic Vegetation Monitoring Program	9-38
9.5	Status of Brook Trout in the Prettyboy Reservoir Watershed	9-40
9.6	Stream Corridor Assessment.	9-41
	9.6.1 Introduction.	9-41
	9.6.2 Summary of Results	9-43
	9.6.3 Summary of Erosion.	9-43
	9.6.4 Summary of Trash Dumping.	9-48
	9.6.5 Summary of Inadequate Buffer	9-49
	9.6.6 Summary of Unusual Conditions and Comments	9-52
	9.6.7 Summary of Fish Barrier	9-54
	9.6.8 Summary of Pipe Outfall	9-56
	9.6.9 Summary of Channel Alteration.	9-59
	9.6.10 Stream Stability Assessment.	9-62
	9.6.11 Summary of Summary of In or Near Stream Construction	9-63
	9.6.12 Summary of Exposed Pipe.	9-63
	9.6.13 Discussion.	9-63
9.7		9-67
	9.7.1 Introduction.	9-67
	9.7.2 Monitoring Protocol	9-67
	9.7.3 Preliminary Results.	9-69
9.8	Bacteria TMDL	9-70
	9.8.1 Introduction	9-71
	9.8.2 Monitoring Protocol	9-72
	9.8.3 Results	9-72

Section	10: BMP Pollutant Load Reduction	
10.0	Permit Requirements	10-1
	Introduction	10-1
	Pollutant Load Calculations	10-2
10.3	New Nutrient Reduction and Impervious Cover Addressed Tracking Added	10.5
10.4	This Year	10-5
	Summary of Pollutant Reduction Programs	10-6
10.5	Progress in Meeting MS4 Impervious Restoration, TMDLs, and Maryland	
	Tributary Strategies.	10-10
	10.5.1 MS4 Impervious Restoration.	10-10
	10.5.2 TMDL Progress.	10-11
	10.5.3 Maryland Tributary Strategies	10-12
10.6	Summary	10-13
Section	11: Permit Administration, Legal Authority, and Fiscal Analysis	
11.0	Permit Requirements	11-1
11.1	Permit Administration	11-1
11.2	Legal Authority	11-2
	11.2.1 Stormwater Management	11-2
	11.2.2 Chesapeake Bay Critical Area	11-3
	11.2.3 Soil Erosion and Sediment Control	11-3
11.3	Fiscal Analysis	11-3

List of Tables

1-1	Fee-in-lieu money received in 2010
1-2	Approved Stormwater Management Facilities by Watershed Through 2010
1-3	SWM Inspections 2010
1-4	Stormwater Facility Maintenance Visits by Type 2010
1-5	SWM Pond Maintenance Activities for Calendar Year 2010
1-6	Constructed SWM Facility Drainage Area Land Use (Acres) by Watershed
-	through Calendar Year 2010
1-7	Pollutant Loads to Constructed SWM Facilities by Watershed
1-8	Percent Removal Efficiency of BMPs.
1-9	Total Phosphorus Removal by SWM Facility Type and Watershed
1-10	Total Nitrogen Removal by SWM Facility Type and Watershed
1-11	Impervious Cover Addressed by All SWM and Advanced SWM
2-1	Number of Grading Permits and Acreage of Disturbance by Watershed for
Z- 1	2010
2-2	Number of Building Permits by Watershed Approved in 2010
2-3	Number of Grading and Building Permits by Year
2-4	Sediment Control Inspection Data for 2010
3-1	NPDES Permit Compliance Status
3-2	Removal Rates of Inlet and Pipe Cleaning by Year.
3-3	2010 Material Removed in Cubic Yards by Watershed
3-4	2010 Storm Drain Cleaning Program Pollutant Removal (Pounds) and
	Impervious Urban Acres Treated
3-5	Annual Street Sweeping Summary.
3 - 6	2010 Street Sweeping Program – Proportion of Swept Miles
3-7	2010 Street Sweeping Program Pollutant Removal (Pounds) and Impervious
<i>3</i> -1	Urban Acres Treate
3-8	Household Hazardous Waste Recycled (2003-2010)
3-0 3-9	
3-9	2010 County Agency Fertilizer, Pesticide, and Deicing Materials Used (in Pounds)
3-10	Annual Fertilizer, Pesticide and Deicing Materials Used By County Agencies
	(in Pounds)
4-1	NPDES Public Environmental Education Topics Addressed through County
	Initiatives, by Basin, 2010.
4-2	Education Outreach Conducted for Residents of the County and Region by
. –	Watershed Audience, 2010.
4-3	Education Presentations, Distributions and Events by Type of Audience,
	2010
4-4	Maryland Green Schools by Jurisdiction 1999-2010.
4-5	School and Community Environmental Education and Stewardship Projects
4-3	
	Implemented in County Watershed Basins as reported by the New and
	Recertifying MD Green Schools (public and private) in Baltimore County,
4.6	2010
4- 6	Number of Participants in MD Green School Program in Baltimore County,
	2010
4-7	Student Participation in BCPS Tree Plantings on Baltimore County School Property, Fall 2010.
4-8	Community and Business Partnerships Supporting Baltimore County's Public

	Schools recognized as MD Green Schools, 2010.
4-9	Presentations, Participants and/or Audience, and Materials, 1994-2010
5-1	Major Outfalls by Watershed and Priority Classification
5-2	Non-prioritized outfalls by Watershed
5-3	Complaints Processed from January 1, 2010 through December 31, 2010
7-1	Status of Watershed Management Plans
7-2	SWAP Schedule
7-3	Percent Removal Efficiency of BMPs
7-4	CBP Nutrient Loading Rates
7-5	Prettyboy Reservoir Watershed – CIP Status
7-6	Loch Raven Reservoir Watershed – CIP Status
7-7	Lower Gunpowder Falls Watershed – CIP Status
7-8	Little Gunpowder Falls Watershed – CIP Status
7-9	Bird River Watershed – CIP Status
7-10	Gunpowder River Watershed – CIP Status
7-11	Middle River Watershed – CIP Status
7-12	Patapsco River Watershed – CIP Status
7-13	Gwynns Falls Watershed – CIP Status
7-14	Jones Falls Watershed – CIP Status.
7-15	Back River Watershed – CIP Status
7-16	Baltimore Harbor Watershed – CIP Status
7-17	Baltimore County Reforestation Projects by Calendar Year
7-18	Baltimore County Reforestation Projects by Watershed through 2009
7-19	Watershed Associations' Projects Resulting in Nutrient Reductions
7-20	Watershed Association Projects Nutrient Reductions by Watershed
7-21	Number of Growing Home Trees Planted in the Upper Western Shore Basin.
7-22	Number of Growing Home Trees Planted in the Patapsco/Back River Basin
7-23	Growing Home Trees Associated Nutrient Reductions
7-24	Big Tree Sale Associated Nutrient Reductions.
7-25	BCPS High School Forest Restoration Project Plantings.
7-26	Baltimore County Impervious Area by Watershed – Changes Between 1997 and 2005.
7-27	Baltimore County and Maryland State Highway Impervious Acreage
7-28	Nutrient Reduction and Impervious Acreage Addressed by Completed Capital Projects
7-29	County Impervious Cover Addressed by the Current SWAPs
8-1	Scotts Level Branch, Powder Mill Run, and Upper Gwynns Falls Information
8-2	USGS Gage Information.
8-3a	SL-01 Precipitation Data Analysis for Calendar 2010.
8-3b	SL-09 Precipitation Data Analysis for Calendar 2010.
8-4a	2010 Precipitation Amount, Intensity, and Duration by Category for SL-01
8-4b	2010 Precipitation Amount, Intensity, and Duration by Category for SL-09
8-5a	Seasonal Precipitation and Runoff Characteristics for SL-01
8-5b	Seasonal Precipitation and Runoff Characteristics for SL-09.
8-6a	SL-01 Regression Equations Relationship Between Discharge (CFS) and Pollutant Concentrations
8-6b	SL-09 Regression Equations Relationship Between Discharge (CFS) and Pollutant Concentrations.
	1 VIIMMIL CONCONDUMENTO

8-7	2010 Daily Baseflow Pollutant Loads for Scott's Level Branch Sites	8-15
8-8	Pollutant Load Characteristics for USGS gaged site Calendar Year 2010	8-17
8-8b	Pollutant Load Characteristics for Outfall site (SL-09) Calendar Year 2010	8-18
8-9	Scotts Level Branch Cross Sections - Annualized Cut and Fill Amounts	8-22
8-10	Scotts Level Branch Stream Channel Changes Over Time	8-23
8-11	Powder Mill Run Cross Sections- Cut and Fill Amounts	8-25
8-12	Powder Mill Run, 2007-2009 and 2005-2009 Stream Channel Changes	8-24
8-13	2010 Pollutant Load Estimates and Calculations for Stream Bank Soil Sediment and Nutrients	8-28
8-14	Calculated Watershed Looads Delivered Based on SL-09 Monitoring Data	8-30
8-15	2010 Watershed Pollutant Load Estimates Compared to Water Quality	0-30
0-13	Monitoring at SL-01	8-30
8-16	Land Use and CBP Watershed Model 5.3 Loading Rates for SL-01 Gage	0-30
0-10	Drainage Area and Calculated Loads	8-32
9-1	Site Codes and the Associated Tidal Water body	9-13
9-1	Summary of Capital Improvements Projects Monitoring and Reports	9-13
7-4	Submitted for 2010	9-17
9-3		9-17
	BIBI Metrics.	
9-4	BIBI Score Distribution by Watershed (% by Category)	9-18
9-5	Watershed Biological Condition Using Percent Stream Mile Method	9-22
9-6	Stream Restoration Biological Monitoring Site Locations	9-28
9-7	Reference Site Locations.	9-37
9-8	SAV Standards and Baltimore County SAV Monitoring Results (2007-2009)	9-39
9-9	Total Stream Miles and Stream Miles Surveyed, by Subwatershed	9-44
9-10	Summary of Results From Direct Drainage 1	9-45
	9-10.1 Summary of Results From Direct Drainage 2	9-45
	9-10.2 Summary of Results From Muddy Creek	9-45
9-11	Listing of Information by Site.	9-63
9-12	Listing of Sites by Problem Category	9-64
9-13	Bacteria Site Rating.	9-75
10-1	Status of TMDLs and TMDL Reduction Requirements for Urban	
	Stormwater	10-1
10-2	Nitrogen Per Acre Pollutant Rate, MDE Segment and CBP Segment	10-3
10-3	Phosphorus Per Acre Pollutant Rate, MDE Segment and CBP Segment	10-4
10-4	2005 Land Use (Acres).	10-4
10-5	Watershed Nitrogen Loads- Pounds and Percentage.	10-5
10-6	Watershed Phosphorous Loads Pounds and Percentage	10-5
10-7	Pollutant Removal (Pounds) by Upper Western Shore Watersheds Attributed	10 5
10 /	to BMP's	10-7
10-8	Pollutant Removal (Pounds) by Patapsco/Back River Watersheds Attributed	10-7
10-0		10-9
10-9	to BMPs Impervious Cover Addressed by Water Quality Improvement Efforts to	10-9
10-9		10-11
10.10	Date	
10-10	Progress in Meeting Nutrient TMDLs Where Developed	10-12
10-11	Upper Western Shore Urban Tributary Strategy	10-13
10-12	Patapsco/Back River Urban Tributary Strategy	10-13
10-13	Tributary Strategy Urban Non-point Nutrient Load Reduction Process	10-13
11-1	Major NPDES Program Tasks and Responsible Baltimore County	11 1
11.2	Agencies.	11-1
11-2	NPDES Operating Budget	11-3

11-3	Capital Budget and Program	11-3
11-4	Baltimore County Environmental Capital Improvement Program-Fiscal Year	
	2010 & 2011	11-4
11-5	Baltimore County Environmental Capital Improvement Program-Fiscal Year	
	2012 & 2013	11-4
11-6	Baltimore County Environmental Capital Improvement Program-Fiscal	
	Years 2014 & 2015	11-5

List of Figures

1-1	Number of Approved SWM Facilities by Watershed— Through	
1.0	Calendar Year 2010.	1-6
1-2	Acreage Served by Approved Private SWM Facilities by Watershed	1-6
1-3	Through Calendar Year 2010	1-0
1-3	Through Calendar Year 2010	1-7
	Tillough Calchdar Tear 2010	1-/
2-1	Acres of disturbance through approved grading permits by watershed for	
	2010	2-3
2-2	Number of building permits issued in 2010 by watershed	2-4
2-3	Approved Grading and Building Permits for the Period 1998 – 2010	2-5
2-4	The number of sediment control enforcement actions by month for the	
	calendar year 2010.	2-6
2-5	Number of sediment control inspections and the total number of inspections by	
	month for the calendar year 2010	2-7
3-1	Summary Report for Inlets	3-4
3-2	Annual Inlet Debris Removal Rates.	3-5
3-3	Summary Report for Pipes.	3-5
3-4	Annual Pipe Debris Removal Rates.	3-6
3-5	Miles of Street Swept, Tons of Material Removed and Tons/Miles Swept	3-11
3-6	Household Hazardous Wastes Recycling of Flammables, Gasoline, and	5 11
	Pesticides from 1998 to 2010	3-16
3-7	Motor Oil and Anti-freeze Recycled from 1991 through 2010	3-17
3-8	Trends in Annual Fertilizer and Pesticide Used by County Agencies	3-19
3-9	Trends in Annual Deicing Material Used by County Agencies	3-20
- 1		
5-1a	Major Outfall Prioritization	5-5
5-1b	Minor Outfall Prioritization	5-6
5-2a	Minor Outfall Screening Priority Distribution	5-7
5-2b	Major Outfall Screening Priority Distribution.	5-7
5-3a 5-3b	Major Outfalls Number of <i>quantitative</i> problems detected	5-8 5-8
5-4a	Major Outfalls Number of <i>qualitative</i> problems visually observed	3-8 5-9
5-4a 5-4b	Minor Outfalls Number of <i>qualitative</i> problems visually observed	5-9 5-9
5- 4 0	Involvement of the Regional Programs in the Investigation of Illicit	3-9
3-3	Connections	5-16
7-1	Baltimore County SWAPs.	7-5
7-2	Capital Projects in the Prettyboy Watershed.	7-10
7-3	Capital Projects in the Loch Raven Watershed.	7-13
7-4	Capital Projects in the Lower Gunpowder River Watershed	7-15
7-5	Capital Projects in the Bird River Watershed.	7-18
7-6	Capital Projects in the Gunpowder River Watershed	7-19
7-7	Capital Projects in the Middle River Watershed	7-21
7-8	Capital Projects in the Patapsco River Watershed	7-24
7-9	Capital Projects in the Gwynns Falls Watershed	7-27
7-10	Capital Projects in the Jones Falls Watershed	7-29
7-11	Capital Projects in the Back River Watershed	7-32
7-12	Capital Projects in the Baltimore Harbor Watershed	7-35

7-13	Number of trees obtained through the Tree-Mendous Maryland Program with technical assistance and free tree delivery by DEPRM between 1990 and 2010.	7-40
8-1	Subwatersheds to be used in the Paired Watershed Monitoring Design	8-
8-2	Scotts Level Branch Chemical Monitoring Locations.	8-
8-3	Scotts Level Branch Geomorphological and Biological Monitoring Site Locations	8-
8-4	Powder Mill Run Chemical, Geomorphological, and Biological Monitoring Sites	8-
8-5a	Calendar year 2010 Daily Precipitation and Discharge at SL-01	8-1
8-5b	Calendar year 2010 Daily Precipitation and Discharge at SL-09	8-1
8-6	Scotts Level Branch Pollutant Loads at SL-01 Gage from 2003-2010 (adjusted for average annual rainfall).	8-2
8-7	Scotts level Branch Geomorphological Cross Section 1 Overlay showing differences in channel morphology between the 2010 and 2011 surveys	8-2
8-8	Scotts Level Branch and Powder Mill Run IBI Scores.	8-2
8-9	Scotts Level Branch and Powder Mill Run PHI Scores.	8-2
8-10	Windlass Run Aerial Photograph Showing Monitoring Station Locations	8-3
8-11	Orthophotograph of Windlass Run watershed, 1995, with potential for	
	development highlighted in red cross-hatching.	8-3
8-12	Windlass Run watershed orthophotograph, 2002	8-3
8-13	Windlass Run orthophotograph, 2005	8-3
8-14	Windlass Run orthophotograph, 2008.	8-3
8-15	Amount of material moved through thalweg in Windlass Run during entire study period	8-4
8-16	Summary of pebble counts in Windlass Run during entire study period	8-4
8-17	Windlass Run Bank Height Ratios.	8-4
8-18	Windlass run BIBI Scores.	8-4
8-19	Windlass Run PHI Scores.	8-4
9-1	Patapsco/Back River Basin-Baseflow Monitoring Sites	9-
9-2	Gunpowder Basin- Deer Creek-Baseflow Monitoring Sites	9-
9-3	Trend Monitoring Sites	9-
9-4	Baseflow Dissolved Copper, Nitrate/Nitrite, Total Nitrogen, Chloride, Sodium, and Total Phosphorus for sampling years 2003-2009	9-
9-5	Baseflow Total Nitrogen Mean Concentrations for Monitoring Years	9-
-	2008(Gunpowder Basin) and 2009 (Patapsco/Back River Basin)	
9-6	Baseflow Total Phosphorus Mean Concentrations for Monitoring Years 2008	
, ,	(Gunpowder Basin) and 2009 (Patapsco/Back River Basin)	9-1
9-7	Tidal Waters Monitoring Site Locations.	9-1
9-8	Pollutant Between Year Variation by Site	9-1
9-9	Tidal Monitoring Rolling Averages for TSS, Dissolved Copper, TKN,	
	Nitrate/Nitrite, Total Nitrogen, and Total Phosphorus for sampling years 2002 through 2009	9-1
9-10	Means and one standard deviation of BIBI scores for Patapsco/Back River	, .
	watersheds between 2003 and 2009.	9-2
9-11	Means and one standard deviation of BIBI scores of Gunpowder Falls/Deer	, <u>-</u>
	Creek watersheds between 2004 and 2008.	9-2
9-12	Probabilistic Biological Monitoring results for 2009 and 2010	9-2
9-13	Probabilistic Biological Monitoring results for 2007 and 2008	9-2
9-14	BIBI rolling averages. 9.14.1 A Patapsco Back River probabilistic monitoring sites between 2003and	9-2
	9.14.1 A ratapsco back river probabilistic monitoring sites between 2003and	

	2009
	9.14.2 B Gunpowder/ Deer Creek probabilistic monitoring sites between 2004
	and 2010
5	Mean BIBI scores
	9.15.1 A Patapsco/Back River Sentinel Sites between 2003 and 2009
	9.15.2 B Gunpowder/Deer Creek Sentinel Sites between 2004 and 2010.
5	Minebank Run Biological Monitoring Stations
7	Biological index values at the downstream, unrestored control (MNBK-1); the unrestored control (JB-1); restored Phase II (MNBK-2 and MNBK-4); and restored Phase I (MNBK-7) stations from beginning of monitoring to
	present
3	Woodvalley Biological Monitoring Station Locations
9	Benthic and Fish IBI and Physical Habitat Index Values for (a) WDVL-1 (restored) and (b) WDVL-3 (control)
0	Biological index values for Redhouse Run stations, 2009 and 2010
<i>,</i> [Spring Branch biological index values
	Benthic IBI Values for Reference Sites, 2001 and 2010
	Physical Habitat Index values for Reference Sites, 2001 and 2010
	Baltimore County SAV Monitoring Program – Trends in % Coverage
	Map of Prettyboy Subwatersheds
)	Map of the Streams Surveyed.
	9-26-1 Direct Drainage 1 and 2
	9-26-2 Muddy Creek
	Potential Stream Problems.
	Severity Distribution of Sites
)	Map of Erosion Severity and Location.
)	Severity Distribution of Sites
	Map of Trash Dumping Severity and Location
2	Severity Distribution of Sites.
3	Map of Inadequate Buffer Severity and Location
	9.33.1 Direct Drainage 1 and 2
	9.33.2 Muddy Creek
Į.	Severity Distribution of Sites.
5	9.34.1 A Map of Unusual Condition/Comment Severity and Location (Direct
	Drainage2)
	9.34.2 B Map of Unusual Condition/Comment Severity and Location (Muddy Creek
6	Severity of Distribution of Sites
7	Map of Fish Barrier Severity and Location.
3	Severity Distribution of Sites
)	Map of Pipe Outfall Severity and Location Direct Drainage 2 and Muddy Creek
	9.39.1 A Map of Pipe Outfall Severity and Location (Direct Drainage 2).
	9.39.2 B Map of Pipe Outfall Severity and Location (Muddy Creek)
	Severity Distribution of Sites
	Map of Channel Alteration Severity and Location Direct Drainage 1,2, and
	Muddy Creek
	9.41.1 A Map of Channel Alteration Severity and Location (Direct Drainage 1
	and 2)
	9.41.2 B Map of Channel Alteration Severity and Location (Muddy
	1 \
	Creek)

9-42	Map of Stream Stability Assessment Location (Direct Drainage 1 and 2)	9-62
9-43	Map of Trash TMDL Monitoring Locations	9-63
9-44	Graph of Data A,B,C,D for Gwynns Falls and Jones Falls	9-69
	9.44.1 A Graph of Data for Gwynns Falls	9-69
	9.44.2 B Graph of Data for Gwynns Falls	9-69
	9.44.3 C Graph of Data for Jones Falls	9-70
	9.44.4 D Graph of Data for Jones Falls	9-70
9-45	Map of Bacteria TMDL Monitoring Stations	9-71
	9.45.1 A Herring Run MPN	9-72
	9.45.2 B Gwynns Falls Geometric Mean	9-73
	9.45.3 C Loch Raven Geometric Mean	9-73
	9.45.4 D Prettyboy Geometric Mean	9-74
	9.45.6 E Jones Falls Geometric Mean	9-74
	9.45.7 F Patapsco Geometric Mean	9-75

List of Exhibits

4-1	Baltimore County's "Quick Guide" for Citizens, Organizations, and Businesses, Page 1	4-33
4-2	Baltimore County's Maryland Green Schools and Green Centers, 1999- 2009	4-35
11-1	Department of Environmental Protection and Resource Management Table of Organization for FY2011	11-5
11-2	Department of Environmental Protection and Resource Management Staff Organizational Chart Effective 2010	11-8
	List of Appendices	
1-1	Public Stormwater Facility Maintenance by Type for Calendar Year 2009.	1-15
2-1 4-1	List of Individuals Receiving Certification Presentations, Distributions, and Events, by Watershed, 2009	2-8 4-36
8-1	Regression Analysis Graphs	8-44
8-2	Event Mean Concentration Graphs	8-54
9-1	Baseflow Monitoring Sites by Watershed	9-57
9-4	Results of 2010 Probabilistic Monitoring.	9-70
11-1	Stormwater Management Regulatory Changes Bill 25-10	11-9